National Weather Service Forecast Office Chicago

CHICAGO

Weather Currents

Winter 2010

Volume 8, Issue 4

Inside this issue:

Top Weather Events of 2010 North Central and Northeast Illinois, and Northwest Indiana

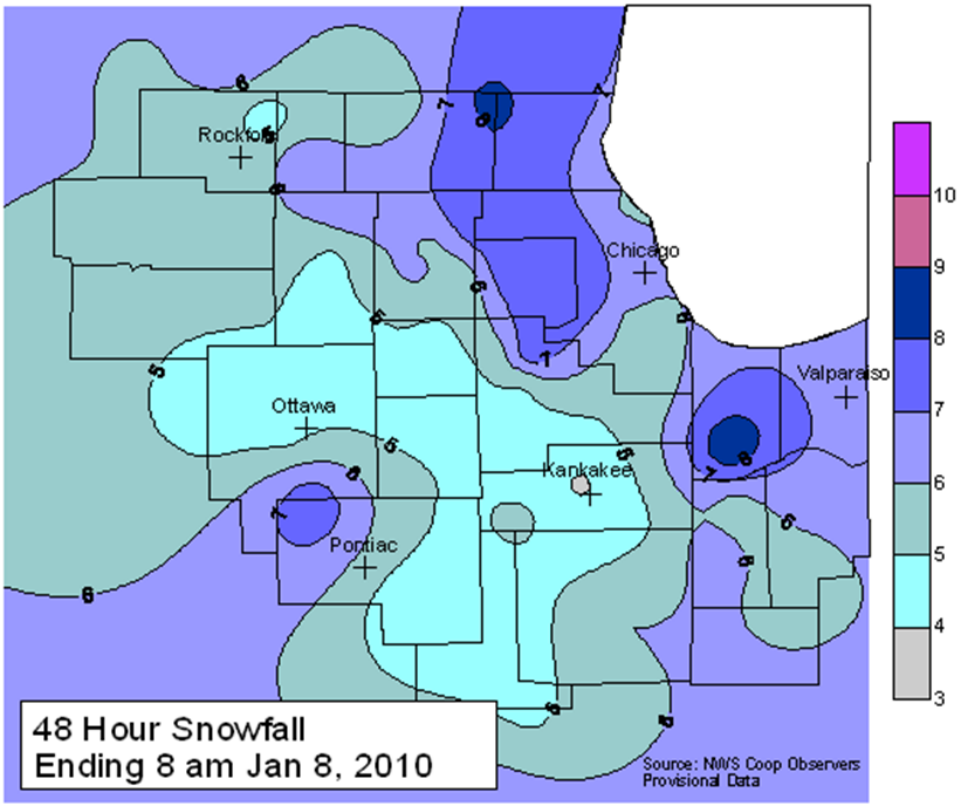
by Jim Allsopp, Warning Coordination Meteorologist

Long Relentless Winter – The winter of 2009-2010 brought above normal snowfall and slightly below normal temperatures. Chicago had 54.2 inches of snow for the season, 16.2 above normal. Rockford had 50.7 inches, 12 inches above normal. It was the third straight season with more than 50 inches of snow for both cities. That had never occurred before in Rockford, only occurred once before in Chicago, 1976-77, 1977-78, and 1978-79. The snow was very persistent. Rockford had at least an inch of snow covering the ground continuously for 47 days from December 8 through January 23. In Chicago, snow covered the ground nearly continuously from December 19 through March 5, except for 3 days in January and 4 days in February. It was not extremely cold, but persistently cold. Chicago only recorded one sub zero temperature the entire winter. But the temperature reached 40 degrees only four times between December 3 and March 3 at both Rockford and Chicago. There were 14 deaths due to exposure to cold during the winter, all but one occurring in Cook County.

Early January Cold – Early January brought the coldest weather of 2010. In Chicago, the high was 11 on January 2 and the low was -1 on January 3. It was the only sub-zero temperature recorded in Chicago last winter. Rockford was below zero seven of the first ten days of January (total of ten days for the season) with a high of 7 on January 2 and a low of -8 on January 3. Rockford's coldest temperature was -10 on the 10th.

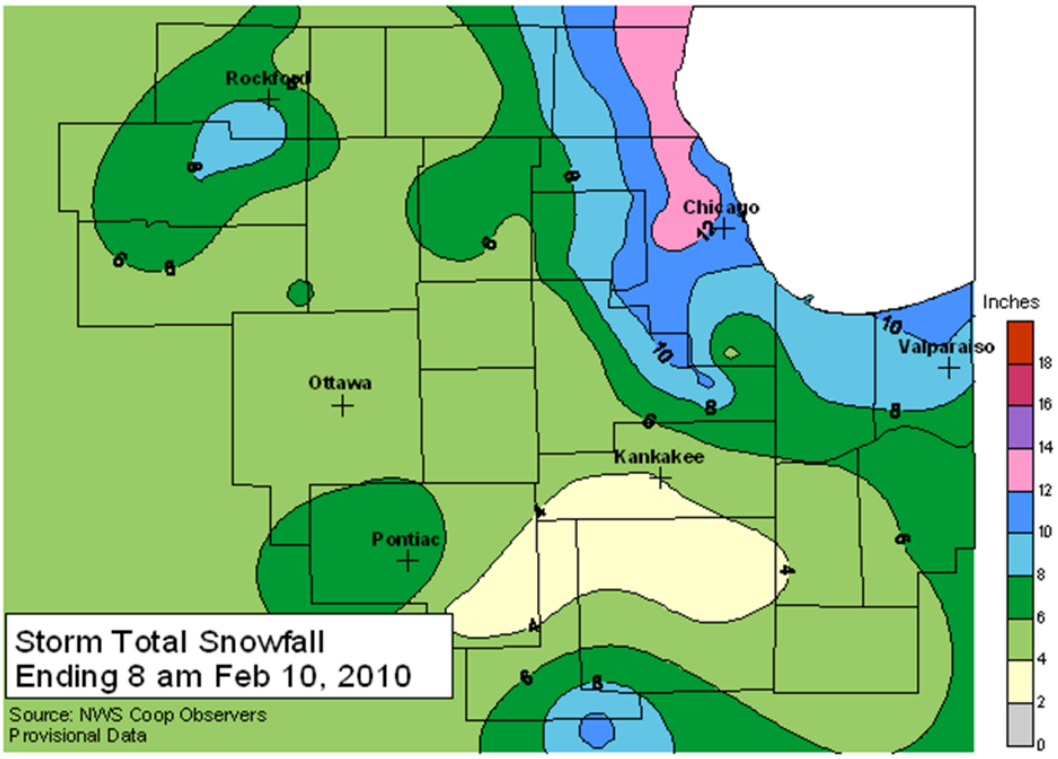
January 6-8 Heavy Snow - A winter storm brought 6 to 8 inches of snow over north central and northeast Illinois, especially near Lake Michigan, including 7.5 inches at O'Hare, and 6.2 inches at Rockford, while 6 to 12 inches fell over northwest Indiana.

Top Weather Events of 2010 (cont)



Map of snowfall January 6-8, 2010

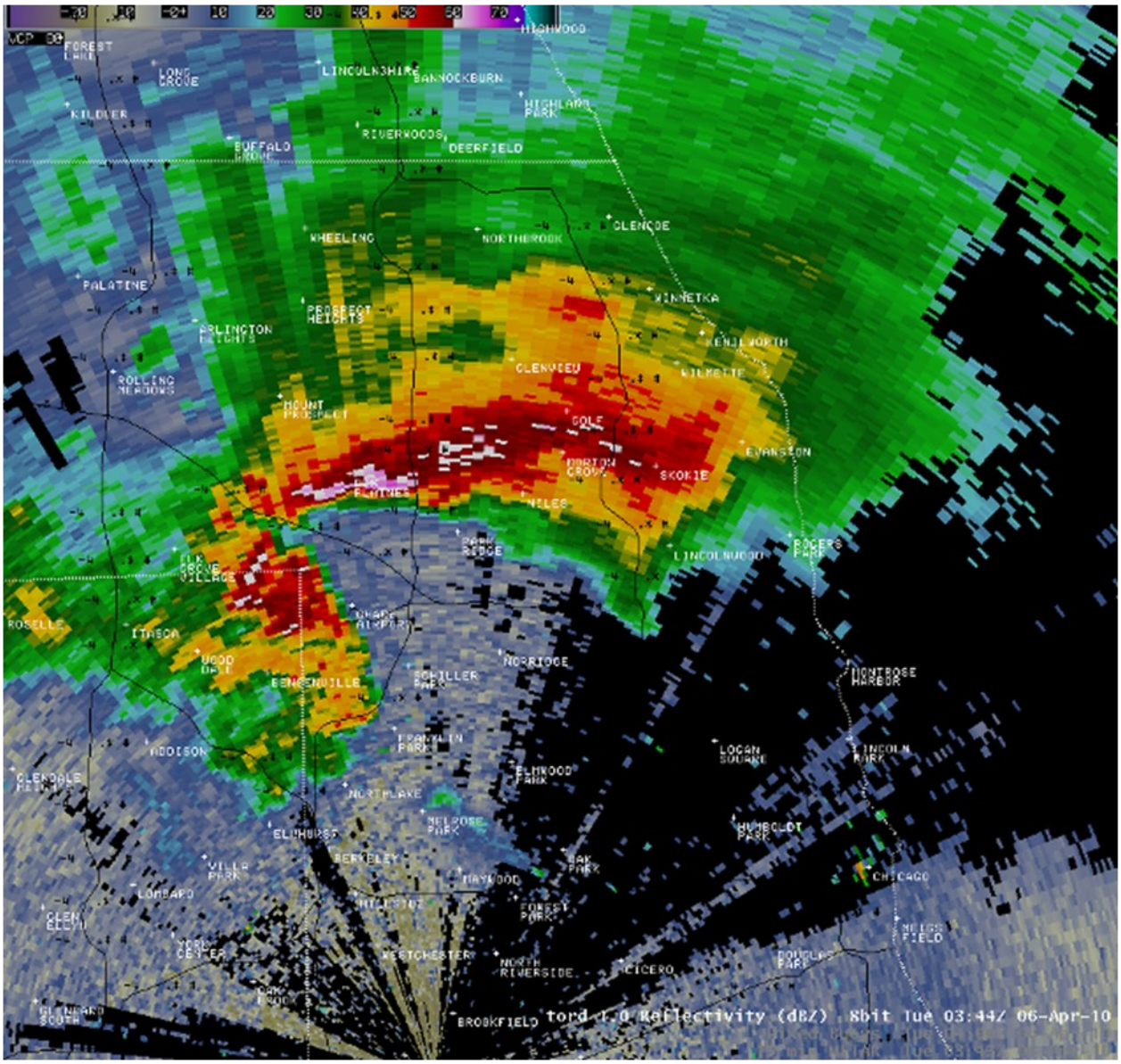
February 8-10 Heavy Snow - A winter storm brought 7 to 14 inches of snow to north central and northeast Illinois as well as northwest Indiana, including 12.9 inches at O'Hare and 7.4 inches at Rockford. Again, the heaviest snowfall was near Lake Michigan.



Map of snowfall February 8-10, 2010

Top Weather Events of 2010 (cont)

April 5-6 Supercells – A large, elevated supercell moved from Ogle County east to the north side of Chicago during the evening of April 5th. Although the storm was a classic supercell with strong rotation and a hook echo, cool stable air in the lowest 5000 feet of the atmosphere prevented this storm from producing a tornado and far greater damage. However, the storm did produce a swath of hail and wind damage. A corn crib and machine shed were destroyed, and other outbuildings damaged west of Polo. Trees were blown down and more outbuildings were damaged across Ogle, Lee, DeKalb, and Kane Counties. In Bensenville, the roof of an auto shop was damaged by 60 to 70 mph winds. The storm produced hailstones from penny to golf ball size along much of its path. The largest hail, some the size of baseballs, fell near Des Plaines. Additional storms produced hail to the size of golf balls and wind damage into the early morning hours of April 6.



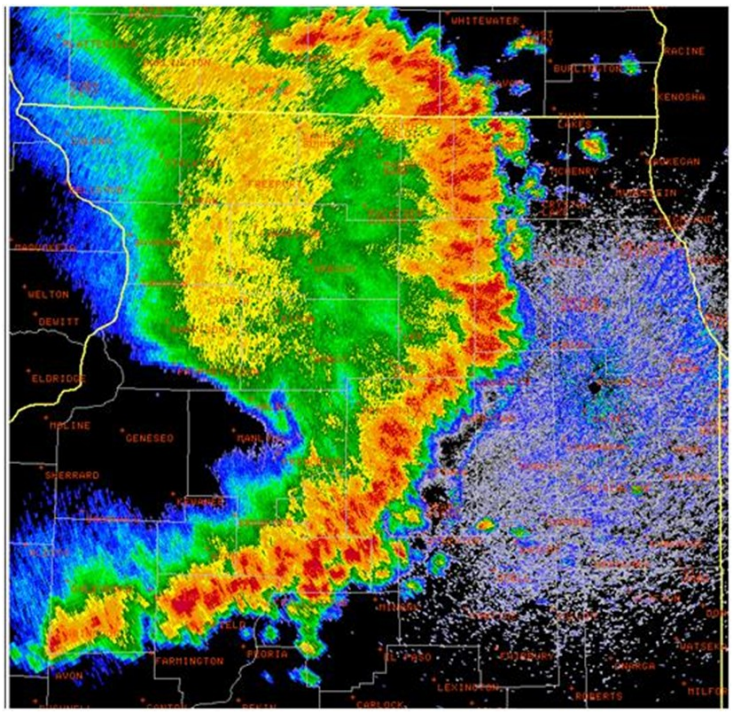
Doppler radar image of supercell storm near O'Hare Airport April 5, 2010

Top Weather Events of 2010 (cont)

June 5 Tornado Outbreak – A dozen tornadoes struck the NWS Chicago forecast and warning area. One supercell produced ten of the tornadoes along a path from Streator to Dwight to just south of Kankakee. One person was killed and 32 were injured. The strongest tornadoes were rated EF3, one over rural northern Livingston County and the other near St. Anne in Kankakee County. EF2 tornadoes struck Streator and Dwight.

Two tornadoes near St. Anne, Kankakee County, June 5, 2010 – photo by Brandon Redmond

June 18 Bow Echo – A fast moving, arc shaped line of thunderstorms, known as a bow echo, swept across northern Illinois and northwest Indiana producing damaging winds gusts in excess of 60 mph. The storms caused damage to trees and power lines. The roof of a house was damaged in Winnebago County. Roofs were ripped off buildings in Rochelle. A bowling alley sustained roof damage in Antioch. The Allstate Arena roof was damaged in Rosemont, and a nearby garage was damaged. Windows were blown out of the Willis Tower and buildings were also damaged at State and Randolph. Thousands of trees and poles were damaged in Chicago.



Picture on left: Radar image of bow echo over northern Illinois June 18, 2010

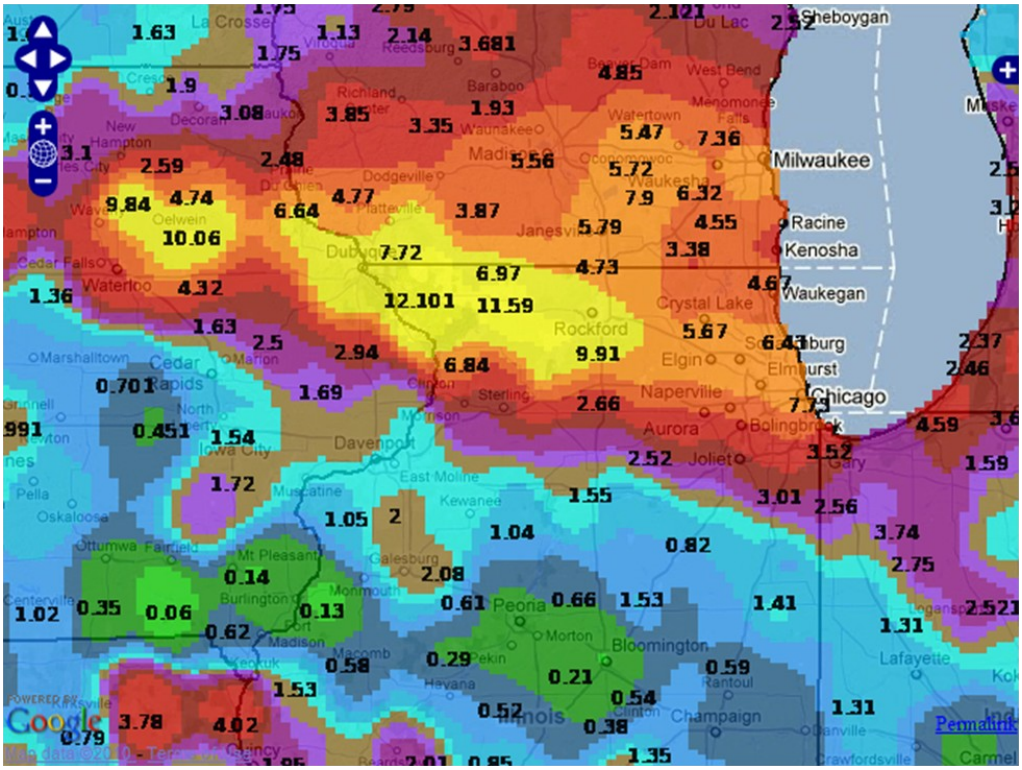
Picture above:: Roof damage at a car dealership in Rochelle, June 18, 2010 – photo by Mike Katz

Top Weather Events of 2010 (cont)

June 23 Severe Storms and Tornadoes – A line of severe thunderstorms moved southeast across northern Illinois and northwest Indiana, some producing winds in excess of 60 mph. One of the strongest storms struck Elmhurst and Oak Brook, producing winds in excess of 90 mph, which blew down large trees and light poles, and caused damage to roofs. Another storm produced a brief EF1 tornado at Matteson.

Roof damage to an office building and trees blown down in Oak Brook, June 23, 2010

July 23 Flooding – Very heavy rain fell across northern Illinois from Ogle County to Cook County. Rainfall totals from July 21 to 23 were 6 to 12 inches. Hard hit areas included north central DuPage and Cook Counties, where many roads and basements were flooded. The flooding caused an estimated $250 million in damages.



Rainfall totals from July 23 through 25

Top Weather Events of 2010 (cont)

Warm Summer – Just as winter was persistently cold but not extremely cold, summer was persistently warm, but not extremely hot. During the summer of 2010 the average temperature in Chicago was 75.2 degrees, which was 4.1 degrees above normal. It was the eight warmest summer of all time. In Rockford the average temperature was 73.5, which was 2.6 degrees above normal, 15th warmest on record. Chicago had 21 days with a temperature of 90 or greater, which is close to the normal of 19. The hottest day was 94 on July 23. Rockford only had 13 days in the 90s, which is near the normal of 14, and the warmest day was only 92, which occurred July 14 and again August 29. However, from April through October, the temperature reached at least 80 degrees ninety eight times in Chicago, the seventh greatest number of 80 degree days in a year. Rockford reached 80 degrees one hundred times. It was the twentieth time Rockford recorded at least 100 days of 80 degrees in a year. The temperature reached at least 80 degrees on 46 consecutive days in Chicago, from July 2 to August 16. That was a record.

Late October Record Setting Low Pressure – Driven by a 150 mph jet stream, a very intense storm deepened to 28.21 inches of mercury over northern Minnesota on October 26. This was one of the deepest low pressure systems to ever occur over the continental U.S. As the storm moved through the Midwest, severe thunderstorms developed ahead of a trailing cold front. Despite the fact that it was before sunrise in late October, the storms produced four tornadoes over northern Illinois and northwest Indiana; an EF2 near Peotone in Will County, an EF1 near Elburn in Kane County, an EF1 near Ashton in Lee County, and an EF0 near Kouts in Porter County. After the cold front passed, and as the storm deepened, winds blew at 20 to 35 mph with a few gusts in excess of 50 mph for two days, downing tree limbs and power lines. The circulation of the massive storm covered half of North America.

Low pressure recorded over Minnesota on October 26, 2010

Top Weather Events of 2010 (cont)

Photo of funnel near Peotone October 26, 2010. Photo courtesy of Carol Cantone

November 22 Tornado – A strong late fall Midwest storm, fueled by a powerful jet stream, brought a surge of unseasonably mild and humid air to northern Illinois. Strong thunderstorms developed in the afternoon, producing hail and gusty winds. An EF2 tornado formed just northeast of Rockford, near Loves Park and continued northeast through Caledonia in Boone County to just north of Harvard in McHenry County, closely paralleling the path of the January 7, 2008 tornado. In the past 130 years, only 9 EF2 or F2 tornadoes have been documented over north central or northeast Illinois. Only two other tornadoes of this strength have ever been documented later in the year, December 4, 1955 and December 7, 1951.

Tornado near Caledonia, November 22, 2010. Photo courtesy of Sean Lyon

Top Weather Events of 2010: (cont)

December 12-14 Winter Storm – Rain changed to snow on the night of December 12 as a low pressure system tracked across the region. On Sunday morning December 13 the strong winter storm brought powerful north winds, wind driven snow, and sub zero wind chills to northern Illinois, heavy lake effect snow to northwest Indiana, and large waves to Lake Michigan. Most of the area only received 1 to 4 inches of snow, but north winds gusting to 45 to 55 mph caused near blizzard conditions, especially in open rural areas. This led to numerous accidents, stranded motorists, downed tree limbs and power lines, and many flight delays and cancelations at O'Hare. The strong winds generated 15 to 20 foot waves which flooded roads and eroded beaches from the Chicago lakefront into northern Indiana. As the cold air plunged south behind the storm, lake effect snow impacted mainly Porter County in northwest Indiana, where 6 to 14 inches of snow fell.

Beach erosion, Indiana Dunes, December 13. Photo by Doug Stukey

Give the gift of All Hazards NOAA Weather Radio

by Amy Seeley, Hydro Meteorological Technician

Are you looking for that perfect last minute holiday gift?

Here's a great idea, and it's good for the entire family --- All Hazards NOAA Weather Radio (NWR)!

NWR, also known as the "Voice of NOAA's National Weather Service", is your single source for comprehensive weather and emergency information. It broadcasts official National Weather Service warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week.

NOAA Weather Radios with the SAME receiver can be programmed so that they alert for the county, parish, independent city or marine areas that you choose. NWR receivers without the SAME capability alert for emergencies anywhere within the coverage area of the NWR transmitter, typically several counties, even though the emergency could be well away from the listener.

NWR also broadcasts warning and post-event information for all types of hazards – including natural (such as earthquakes or avalanches), environmental (such as chemical releases or oil spills), and public safety (such as AMBER alerts or 911 Telephone outages).

During severe weather, if power goes out, your NWR can still be used as most of them can run on battery. You can always have the latest information on the weather and what is happening in your area.

There are over 1000 transmitters, which cover all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands and the U.S. Pacific Territories. That means you will have the latest weather information no matter where you are!

NOAA Weather Radios can be purchased at most boating, electronic and outdoor stores.

Peru Cooperative Observer Receives Prestigious Holm Award

by Bill Nelson, Observations Program Leader

National Weather Service Cooperative Observer (COOP) Eldon Gunia of Peru, IL was presented with the John Campanius Holm award at a private ceremony. In attendance were his back-up observers - his wife Leona and sister-in-law Flay; as well as his son Randy, Randy's wife Julie, and their two daughters; Rachael and Lauren; and from the NWS's Chicago Forecast Office - Ed Fenelon, Meteorologist in Charge, Bill Morris, Service Hydrologist, Charles Mott, Hydro-Meteorological Technician, and Bill Nelson, OPL.

Eldon began taking observations 39 years ago at the Peru Greenhouse/Nursery in Peru on October 15, 1971, reporting daily temperature and precipitation data (including snowfall, snow depth), and soil temperatures, to the Chicago forecast office. The equipment then was moved to his residence in 1982. The U.S. Army veteran is also a trained storm spotter and has provided many valuable reports. His at-home interview by Tom Skilling, chief meteorologist for WGN-TV in Chicago, was aired after a COOP Appreciation Day event, in which close to 100 observers from northern Illinois attended a few years ago. Eldon, Leona, and Flay were also presented with coffee cups and clothing that had the NWS logo, as well as letters of congratulations from federal and state dignitaries.

For more information about the COOP program, visit http://www.nws.noaa.gov/om/coop/what-is-coop.html.

From left to right - Ed Fenelon, NWS Chicago Meteorologist in Charge; Eldon Gunia; Bill Nelson, Observations Program Leader. Photo by Bill Morris, Service Hydrologist. 11/7/2010

Westmont is StormReady

by Jim Allsopp, Warning Coordination Meteorologist

On Thursday December 16, the village of Westmont was recognized as Illinois' latest StormReady community. Fire Chief Frank Trout, Deputy Coordinators Ed Jenkins and Dave Lincoln, and Intern Fritz Hayden were instrumental in making sure Westmont met the requirements of the StormReady program. Some of the requirements include;

- A 24 hour warning point (911 center) and Emergency Operations Center (Fire Department)
- Redundant methods of receiving severe weather watches and warnings from NWS
- Redundant methods of monitoring weather and radar
- Redundant methods of disseminating warnings to the community, including NOAA Weather Radios in all public buildings
- Community education
- Trained Skywarn storm spotters
- A comprehensive written severe weather operations plan.

Westmont is one of only 51 StormReady communities in Illinois. For more information on the StormReady program, visit http://www.stormready.noaa.gov/.

Pictured left to right; Fritz Hayden – Westmont EMA, Ed Fenelon – NWS, Jim Allsopp – NWS, Ed Jenkins – Deputy Coordinator Westmont EMA, Frank Trout – Westmont Fire Chief, William Rahn – Westmont Mayor

NWS Forecasters Take Familiarization Float on Lake Michigan

by Mike Bardou, Forecaster

During the wee hours of November 7, 2010, two other meteorologists from the Chicago National Weather Service office and I boarded the 678-foot steamer Wilfred Sykes in Indiana Harbor, IN to embark on a 25 hour journey up Lake Michigan and through the Straits of Mackinac to Cedarville, MI. The trip, referred to as a Familiarization Float, was set up to allow the forecasters to experience conditions out on the open lake and to gain a better understanding of how the marine forecasts they issue every day affect the boats that ply Lake Michigan's waters. Perhaps the main challenge of marine forecasting is the limited amount of data over the water. The atmosphere over the lake can be very different than that over the land and the sparseness of observations makes the marine forecast process extremely difficult. Lake Michigan has numerous shore based observations along its coastline but there are only two buoys out on the lake that make regular observations, and the buoys are retrieved each winter to prevent damage from ice. Freighters and tug boats do make voluntary observations to supplement the buoy data and they are critical to the marine forecast process. Experience out on the lake will help a forecaster expand the knowledge base which is drawn upon to create marine forecasts.

Ironically, the trip was delayed by about a day due to weather, with 12 to 16 ft waves being reported on the lake forcing many vessels to anchor. As the weather quieted, the Sykes made port late Friday night and commenced unloading its cargo of limestone. We were anxious to start our trip as we boarded through the engine room gangway. We were welcomed with a view of the 7,000 horsepower steam turbine which powers the ship. Once aboard we were greeted by the Captain who gave us the run of the boat and welcomed us to be in the pilot house anytime. The discussion then turned to weather and the conditions out on the lake the night before, which were a far cry from what we expected for our trip, with high pressure forecast to cross the lake in the upcoming 24 hours. From there the Captain and the mate on watch described how they take weather observations and estimate wave heights. Thanks to the work of the mate, the Sykes can automatically transmit select weather data from its array of sensors, with the mate on watch augmenting the report with wave height, visibility, and present weather information.

Light snow and a stiff north wind greeted us as the Sykes swung around and passed through the Indiana Harbor piers and onto Lake Michigan. The ship pushed through the 7 and 8 foot waves that remained with little more than a slight roll. Better organized lake effect snow showers were visible to the east as the sun rose as we passed abeam of the south side of Chicago. The northerly winds steadily diminished through the rest of the morning and seas quieted to 3 and 4 foot swells in response. By afternoon, winds were light as the ridge of high pressure passed right over the lake. We spent the majority of the day in the pilot house talking with the crew on watch. We discussed their perception of how accurate the forecasts are and some of the challenges we face as forecasters.

NWS Forecasters Take Familiarization Float on Lake Michigan (cont)

Stories of big storms and tough forecasts were swapped and we learned a great deal about the impact different parts of the lake have on weather conditions. We also learned a thing or two about reading navigational charts and plotting courses. By evening, the ridge had passed and a southerly wind developed. Seas increased to 4 and 5 feet by nightfall and followed us on our stern. Winds later picked up to around 30 knots with seas building to 5 and 6 feet bringing back a slight roll to the ship. Conversation turned to some of the challenges that were ahead of us in the form of shoals and narrow channels between islands, and of course passage through the Straits of Mackinac. Winds, waves, and water levels all impact how boats chart their course around the lake. A late night passage under the Mackinac Bridge announced the home stretch of our trip. The dock we would be making at Cedarville came into view just before sunrise. By first light, the Captain had masterfully swung the ship 180 degrees and backed into the dock.

Even this one trip in quiet weather opened our eyes to what conditions are like on the lake. The opportunity to forecast what conditions will be, and to then experience them first hand, especially in an area where observational data is sparse, was an invaluable experience. The trip has sparked much discussion among forecasters back at the office. Add to that the perspective and feedback gained from those who use and rely on the forecast to make decisions, and encounter the lake's weather on a daily basis, and the forecaster has a much better understanding the marine environment.

The NWS Chicago would like to thank the Captain, crew, and owners of the Wilfred Sykes for their hospitality and their insight into marine weather.

Skywarn Recognition Day, 2010

by Bill Wilson, Lead Forecaster

The Skywarn Recognition Day 2010 at the Chicago, Illinois National Weather Service Forecast Office was snowy and successful! A significant snowstorm however, limited participation from area Ham operators. There were 13 Amateur Radio operators who operated two radios and made contacts across most of the United States, Canada, Estonia and Australia. A total of 315 contacts were made on the 20 meter, 40 meter and 2 meter bands and Echolink. There were 26 contacts with local amateur radio operators on the 2 meter band alone. Nationwide, contacts were made in 45 states.

Skywarn Recognition Day was developed in 1999 by the National Weather Service and the American Radio Relay League. It celebrates the contributions that volunteer Skywarn spotters and Amateur Radio Operators (Hams) make to the National Weather Service for public safety. Spotters, using radio in the Amateur Radio frequencies report severe weather such as flash floods, tornadoes and damaging wind to local county network control radio operators. Then the reports are relayed by radio to the National Weather Service Office here in Romeoville. The meteorologists use these reports in preparing warnings for Illinois and Indiana.

We thank all the Amateur Radio operators who braved the snowy conditions to participate in a successful Skywarn Recognition Day.

Pictures from left to right around the table:

Bill Diaz, KC9XG

Phil Rittenhouse, NW9V

Terry Berg, WA9AWO

Patty Wontroba, N9LCS

NWS Chicago to be at the Chicago Boat Show

By Amy Seeley, Hydro Meteorological Technician

81st Annual
CHICAGO BOAT, RV & OUTDOORS SHOW
January 12–16, 2011 • McCormick Place

If you are headed out to the Chicago Boat, RV & Outdoors Show, why not stop by the Chicago National Weather Service booth!

We will be handing out pamphlets on weather and safety, talking about NOAA All Hazards Radio, answering your questions, and showing off our webpage. If you would like help in programming your NOAA Weather Radio, feel free to bring it with you and we will help with that. Find out the latest on the newest weather products and services we are offering.

Hope to see you there!